UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,372	10/11/2005	Masaharu Tamatsu	050-402	3926

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EXAMINER
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ART UNIT	PAPER NUMBER
2168	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	**Applicant(s)**	
Office Action Summary	10/532,372	TAMATSU, MASAHARU	
	Examiner	**Art Unit**	
	Fariborz Khoshnoodi	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6,8 and 12* is/are pending in the application.

    4a) Of the above claim(s) *2-5, 7, and 9-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,8 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Detailed Action

Response to amendment

1.   Applicant's arguments/amendments with respect to pending claims 1, 6, 8, 12 (cancelled

claims 2-5, 7, and 9-11) filed August 30, 2007 have been fully considered, and therefore the

claims are rejected under new grounds. The claims rejection under 35 USC 101 has been

withdrawn based on the amendments to the claims. The Examiner would like to point out that

this action is made final (See MPEP 706.07a).

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented
> and the prior art are such that the subject matter as a whole would have been obvious at the time
> the invention was made to a person having ordinary skill in the art to which said subject matter
> pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 6, 8, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable by

Tamatsu United States Patent Publication No. 2001/0011321 A1 Further in view of Levy et al.

United States Patent Publication No. 2003/0158842 A1

As per claim 1:

Tamatsu teaches a method/system, comprising: **a primary system that holds data**

records having data items including primary keys, primary blocks that store the data

records in the order of their primary keys, and a location table that contains in a

contiguous region location table entries containing the addresses of the primary blocks

(i.e., "Next, we describe storage and updating with alternate

keys. Alternate-key tables are stored in an alternate-key block

in the order of their alternate keys. Entries in an alternate-

key table consist of an alternate key, the physical address of

the block where the record of that key value is stored, and the

primary key of the record of that key value." (Par. 43)); **a frond**

location table having frond location table entries in a contiguous region indicating the

blocks identical to the location table entries of each primary block; and an accelerator

system the frond location table entries are updated synchronously or asynchronously

according to the updated information issued by the primary system when the location

table entry of the primary blocks is updated *(i.e., "Location tables and*

alternate-key tables are introduced in place of indices.

Records are not stored independently; rather, multiple records

are stored in a single block. FIG. 4 illustrates the structure

of a block. The FROM and TO segments in FIG. 4 represent the

minimum key value and maximum key value of the block,

respectively, but neither is absolutely necessary and the

invention may be implemented with either one alone. When using

long records, a single record may be matched to a single block,

and a format in which a single record is stored over two or more

blocks (spanned records) is also possible. All primary blocks

in a single file and all overflow blocks in a single file are of

equal lengths, facilitating region management. Storage in

blocks allows block detection by means of fixed-length

operations even when variable-length records are stored because

the block units are of a fixed length. The location table

secures the required contiguous region in advance. A single

record (entry) in a location table manages a single primary

block in the data record storage region. Although it is also

possible to implement methods of managing multiple primary

blocks, since primary blocks may be of any given size it is

simpler not to manage multiple blocks if the implementation

allows modification of the size of blocks." (Par. 6)).

Tamatsu does not explicitly disclose for the primary system. However Levy et al. teach a system comprises **primary system** (i.e. "Alternatively, high QoS commands are given priority in being handled by a primary database server accelerated by the accelerator."(See Levy et al. Par. 49)).

Therefore, it would have been obvious to a person in the art at the time the invention was made to modify the method disclosed in Tamatsu to have the primary system. This modification would have been obvious because a person having ordinary skill in the art, at the time the invention was made, having the teachings of Tamatsu and Levy et al. before him/her, to modify the system of Tamatsu to include the primary system of Levy et al., since it is suggested by Levy et al. such that, the primary database server means the primary system and

the queries are performed faster by the primary database server (i.e., "Optionally, at least some of the queries that can be handled by the accelerator in view of the data hosted by the accelerator are not handled by the accelerator, for example, since the queries are handled faster by the primary database server."(See Levy et al. Par. 43)).

As per claim 6:

Tamatsu as modified teaches a method/system, **wherein a primary key performs a binary search on the frond location table and accesses blocks on the primary system based on results indicated by frond location table entries** (i.e., "A binary search is one example of a high-speed search method. Though a binary search method is used here as an example, other methods may also be used to find a target entry. The method used here is to find dichotomous points and compare the value of the primary key of the record stored in that block (abbreviated below as "stored primary-key value"), including the overflow block if the primary block that record points to has an overflow block, with the value of the primary key of the record inserted (abbreviated below as "inserted primary-key value"). If the inserted primary-key value is greater than the smallest of the stored primary-key values of the block or blocks and smaller than the smallest of the stored primary-key values in the next block, it

is stored in the first of those two blocks." (See Tamatsu Par.

37)).

As per claim 8:

Tamatsu teaches a method/system comprising: **a primary system that holds data**

having data items including primary keys and alternate keys, primary blocks that store

the data records in the order of their primary keys, alternate-key blocks that stores the

alternate-key entries made up of alternate keys and primary keys in the alternate-key

value order, and an alternate-key location table that contains the alternate-key location

table entry in a contiguous region *(i.e., "Next, we describe storage and*

updating with alternate keys. Alternate-key tables are stored in

an alternate-key block in the order of their alternate keys.

Entries in an alternate-key table consist of an alternate key,

the physical address of the block where the record of that key

value is stored, and the primary key of the record of that key

value. The number of entries in an alternate-key table changes

when its records are added or updated, but there is a high

possibility that an increase in the number of entries will

result in entry insertion and a very low possibility that such

increase will result in entry addition. Therefore, the

management methods used for primary keys are not

appropriate." (Par. 43)); **and an accelerator system that holds a frond alternate-**

key location table that contains the frond alternate-key location table entries indicating alternate-key location table entries of each alternate-key block and the identical alternate-key block in the contiguous region, where said alternate-key frond location table entries, when the alternate-key location table entry of each alternate-key block is updated, is synchronously or asynchronously updated based on the newly updated information sent from the primary system. *(i.e., "Location tables and alternate-key tables are introduced in place of indices. Records are not stored independently; rather, multiple records are stored in a single block. FIG. 4 illustrates the structure of a block. The FROM and TO segments in FIG. 4 represent the minimum key value and maximum key value of the block, respectively, but neither is absolutely necessary and the invention may be implemented with either one alone. When using long records, a single record may be matched to a single block, and a format in which a single record is stored over two or more blocks (spanned records) is also possible. All primary blocks in a single file and all overflow blocks in a single file are of equal lengths, facilitating region management. Storage in blocks allows block detection by means of fixed-length operations even when variable-length records are stored because the block units are of a fixed length. The location table secures the required contiguous region in advance. A single record (entry) in a location table manages a single primary block in the data record*

storage region. Although it is also possible to implement

methods of managing multiple primary blocks, since primary

blocks may be of any given size it is simpler not to manage

multiple blocks if the implementation allows modification of the

size of blocks." (Par. 6)).

Tamatsu does not explicitly disclose for the primary system. However Levy et al. teach a

system comprises **primary system** (i.e. "Alternatively, high QoS commands

are given priority in being handled by a primary database server

accelerated by the accelerator." (See Levy et al. Par. 49)).

Therefore, it would have been obvious to a person in the art at the time the invention was

made to modify the method disclosed in Tamatsu to have the primary system. This modification

would have been obvious because a person having ordinary skill in the art, at the time the

invention was made, having the teachings of Tamatsu and Levy et al. before him/her, to modify

the system of Tamatsu to include the primary system of Levy et al., since it is suggested by Levy

et al. such that, the primary database server means the primary system and the queries are

performed faster by the primary database server (i.e., "Optionally, at least

some of the queries that can be handled by the accelerator in

view of the data hosted by the accelerator are not handled by

the accelerator, for example, since the queries are handled

faster by the primary database server." (See Levy et al. Par.

43)).

As per claim 12:

Tamatsu as modified teaches a method/system, **wherein accelerator system access by the alternate key is performed by the binary search on the frond alternate-key location table and accesses the alternate-key blocks on the primary system based on results indicated by frond alternate-key location table entries** *(i.e., "This is done by searching the location table. A binary search is one example of a high-speed search method. Though a binary search method is used here as an example, other methods may also be used to find a target entry. The method used here is to find dichotomous points and compare the value of the primary key of the record stored in that block (abbreviated below as "stored primary-key value"), including the overflow block if the primary block that record points to has an overflow block, with the value of the primary key of the record inserted (abbreviated below as "inserted primary-key value"). If the inserted primary-key value is greater than the smallest of the stored primary-key values of the block or blocks and smaller than the smallest of the stored primary-key values in the next block, it is stored in the first of those two blocks. Otherwise, the sizes of the stored primary-key values of that block and the insertion-block primary-key value are again compared, dichotomous points are obtained in the former if the inserted primary-key value is smaller and in the latter if the inserted primary-key value is*

not smaller, and like operations performed to identify the block

to be used for storing the record. "(See Tamatsu Par. 37)).

Response to Arguments

4.   Applicant's amendment presented on August 30, 2007 has been fully considered but they

are moot in view of the new grounds of rejection presented in this office action.

Conclusion

5.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the

extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

will the statutory period for reply expire later than SIX MONTHS from the mailing date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Fariborz Khoshnoodi whose telephone number is 571-270-1005.

The examiner can normally be reached on M-Th every other F 8:00-4:00..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tim Vo can be reached on 571-272-3642. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Fariborz Khoshnoodi
Examiner
Art Unit 2168

FK /FK/ 10/31/07

TIM VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100